IFWO

RAW SEQUENCE LISTING   DATE: 08/27/2004
PATENT APPLICATION: **US/10/720,831**   TIME: 11:37:28

Input Set : **N:\Crf3\RULE60\10720831.raw**
Output Set: **N:\CRF4\08272004\J720831.raw**

SEQUENCE LISTING
```
 3  (1)  GENERAL INFORMATION:
 5       (i)  APPLICANT: Berg, Richard A
 6                       Toman, David P
 7                       Wallace, Donald
 9      (ii)  TITLE OF INVENTION: MUTATED RECOMBINANT COLLAGENS
12     (iii)  NUMBER OF SEQUENCES: 33
14      (iv)  CORRESPONDENCE ADDRESS:
15            (A)  ADDRESSEE: COLLAGEN CORPORATION
16            (B)  STREET: 2500 Faber Place
17            (C)  CITY: Palo Alto
18            (D)  STATE: California
19            (E)  COUNTRY: USA
20            (F)  ZIP: 94303
22       (v)  COMPUTER READABLE FORM:
23            (A)  MEDIUM TYPE: Floppy disk
24            (B)  COMPUTER: IBM PC compatible
25            (C)  OPERATING SYSTEM: PC-DOS/MS-DOS
26            (D)  SOFTWARE: PatentIn Release #1.0, Version #1.25
28      (vi)  CURRENT APPLICATION DATA:
29            (A)  APPLICATION NUMBER: US/10/720,831
30            (B)  FILING DATE: 24-Nov-2003
31            (C)  CLASSIFICATION: 435
32     (vii)  PRIOR APPLICATION DATA:
33            (A)  APPLICATION NUMBER: US/08/278,774
34            (B)  FILING DATE: 22-JUL-1994
35    (viii)  ATTORNEY/AGENT INFORMATION:
36            (A)  NAME: Rafayko, Kathi L
37            (B)  REGISTRATION NUMBER: 36,644
38            (C)  REFERENCE/DOCKET NUMBER: 94-018
40      (ix)  TELECOMMUNICATION INFORMATION:
41            (A)  TELEPHONE: (415) 354-4642
42            (B)  TELEFAX: (415) 354-4752
43            (C)  TELEX:
46  (2)  INFORMATION FOR SEQ ID NO: 1:
48       (i)  SEQUENCE CHARACTERISTICS:
49            (A)  LENGTH: 4 amino acids
50            (B)  TYPE: amino acid
51            (C)  STRANDEDNESS: single
52            (D)  TOPOLOGY: linear
54      (ii)  MOLECULE TYPE: peptide
58      (xi)  SEQUENCE DESCRIPTION: SEQ ID NO: 1:
60            Asp Asp Asp Lys
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```
61      1
63 (2)  INFORMATION FOR SEQ ID NO: 2:
65      (i) SEQUENCE CHARACTERISTICS:
66          (A) LENGTH: 4 amino acids
67          (B) TYPE: amino acid
68          (C) STRANDEDNESS: single
69          (D) TOPOLOGY: linear
71      (ii) MOLECULE TYPE: peptide
75      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
77      Ile Glu Gly Arg
78      1
80 (2)  INFORMATION FOR SEQ ID NO: 3:
82      (i) SEQUENCE CHARACTERISTICS:
83          (A) LENGTH: 7 amino acids
84          (B) TYPE: amino acid
85          (C) STRANDEDNESS: single
86          (D) TOPOLOGY: linear
88      (ii) MOLECULE TYPE: peptide
92      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
94      Tyr Ile His Pro Phe His Leu
95      1                   5
97 (2)  INFORMATION FOR SEQ ID NO: 4:
99      (i) SEQUENCE CHARACTERISTICS:
100         (A) LENGTH: 4 amino acids
101         (B) TYPE: amino acid
102         (C) STRANDEDNESS: single
103         (D) TOPOLOGY: linear
105     (ii) MOLECULE TYPE: peptide
109     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
111     Ala Ala His Tyr
112     1
114 (2) INFORMATION FOR SEQ ID NO: 5:
116     (i) SEQUENCE CHARACTERISTICS:
117         (A) LENGTH: 4 amino acids
118         (B) TYPE: amino acid
119         (C) STRANDEDNESS: single
120         (D) TOPOLOGY: linear
122     (ii) MOLECULE TYPE: peptide
126     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
128     Arg Gly Pro Arg
129     1
131 (2) INFORMATION FOR SEQ ID NO: 6:
133     (i) SEQUENCE CHARACTERISTICS:
134         (A) LENGTH: 17 amino acids
135         (B) TYPE: amino acid
136         (C) STRANDEDNESS: single
137         (D) TOPOLOGY: linear
139     (ii) MOLECULE TYPE: peptide
143     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
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```
145     Gln Leu Ser Tyr Gly Tyr Asp Glu Lys Ser Thr Gly Gly Ile Ser Val
146     1               5                   10                  15
148     Pro
151 (2) INFORMATION FOR SEQ ID NO: 7:
153     (i) SEQUENCE CHARACTERISTICS:
154         (A) LENGTH: 15 amino acids
155         (B) TYPE: amino acid
156         (C) STRANDEDNESS: single
157         (D) TOPOLOGY: linear
159     (ii) MOLECULE TYPE: peptide
163     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
165     Pro Gly Pro Pro Gly Pro Pro Gly Leu Gly Gly Asn Phe Ala Pro
166     1               5                   10                  15
168 (2) INFORMATION FOR SEQ ID NO: 8:
170     (i) SEQUENCE CHARACTERISTICS:
171         (A) LENGTH: 15 amino acids
172         (B) TYPE: amino acid
173         (C) STRANDEDNESS: single
174         (D) TOPOLOGY: linear
176     (ii) MOLECULE TYPE: peptide
180     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
182     Pro Pro Gln Glu Lys Ala His Asp Gly Gly Arg Tyr Tyr Arg Ala
183     1               5                   10                  15
185 (2) INFORMATION FOR SEQ ID NO: 9:
187     (i) SEQUENCE CHARACTERISTICS:
188         (A) LENGTH: 15 amino acids
189         (B) TYPE: amino acid
190         (C) STRANDEDNESS: single
191         (D) TOPOLOGY: linear
193     (ii) MOLECULE TYPE: peptide
197     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
199     Asp Asp Ala Asn Val Val Arg Asp Arg Asp Leu Glu Val Asp Thr
200     1               5                   10                  15
202 (2) INFORMATION FOR SEQ ID NO: 10:
204     (i) SEQUENCE CHARACTERISTICS:
205         (A) LENGTH: 11 amino acids
206         (B) TYPE: amino acid
207         (C) STRANDEDNESS: single
208         (D) TOPOLOGY: linear
210     (ii) MOLECULE TYPE: peptide
214     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
216     Gln Tyr Asp Gly Lys Gly Val Gly Leu Gly Pro
217     1               5                   10
219 (2) INFORMATION FOR SEQ ID NO: 11:
221     (i) SEQUENCE CHARACTERISTICS:
222         (A) LENGTH: 15 amino acids
223         (B) TYPE: amino acid
224         (C) STRANDEDNESS: single
225         (D) TOPOLOGY: linear
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       227      (ii) MOLECULE TYPE: peptide
       231      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
       233      Pro Gly Pro Pro Gly Pro Pro Gly Leu Gly Gly Asn Phe Ala Ala
       234      1               5                   10                  15
       236 (2) INFORMATION FOR SEQ ID NO: 12:
       238      (i) SEQUENCE CHARACTERISTICS:
       239          (A) LENGTH: 16 amino acids
       240          (B) TYPE: amino acid
       241          (C) STRANDEDNESS: single
       242          (D) TOPOLOGY: linear
       244      (ii) MOLECULE TYPE: peptide
       248      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:
W--> 250      Gly Gly Gly Tyr Asp Phe Gly Tyr Asp Gly Asp Phe Tyr Arg Ala Xaa
       251      1               5                   10                  15
       254 (2) INFORMATION FOR SEQ ID NO: 13:
       256      (i) SEQUENCE CHARACTERISTICS:
       257          (A) LENGTH: 15 amino acids
       258          (B) TYPE: amino acid
       259          (C) STRANDEDNESS: single
       260          (D) TOPOLOGY: linear
       262      (ii) MOLECULE TYPE: peptide
       266      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:
       268      Asp Gln Pro Arg Ser Ala Pro Ser Leu Arg Pro Lys Asp Tyr Glu
       269      1               5                   10                  15
       271 (2) INFORMATION FOR SEQ ID NO: 14:
       273      (i) SEQUENCE CHARACTERISTICS:
       274          (A) LENGTH: 19 amino acids
       275          (B) TYPE: amino acid
       276          (C) STRANDEDNESS: single
       277          (D) TOPOLOGY: linear
       279      (ii) MOLECULE TYPE: peptide
       283      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:
       285      Gln Met Ala Gly Gly Phe Asp Glu Lys Ala Gly Gly Ala Gln Met Gly
       286      1               5                   10                  15
       288      Val Gln Met
       291 (2) INFORMATION FOR SEQ ID NO: 15:
       293      (i) SEQUENCE CHARACTERISTICS:
       294          (A) LENGTH: 15 amino acids
       295          (B) TYPE: amino acid
       296          (C) STRANDEDNESS: single
       297          (D) TOPOLOGY: linear
       299      (ii) MOLECULE TYPE: peptide
       303      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:
       305      Pro Gly Pro Pro Gly Pro Pro Gly Leu Gly Gly Asn Phe Ala Ala
       306      1               5                   10                  15
       308 (2) INFORMATION FOR SEQ ID NO: 16:
       310      (i) SEQUENCE CHARACTERISTICS:
       311          (A) LENGTH: 15 amino acids
       312          (B) TYPE: amino acid
```

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313              (C) STRANDEDNESS: single
314              (D) TOPOLOGY: linear
316        (ii) MOLECULE TYPE: peptide
320        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:
322         Gly Pro Arg Glu Lys Gly Pro Asp Pro Met Gln Tyr Met Arg Ala
323         1               5                   10                  15
325  (2) INFORMATION FOR SEQ ID NO: 17:
327        (i) SEQUENCE CHARACTERISTICS:
328              (A) LENGTH: 15 amino acids
329              (B) TYPE: amino acid
330              (C) STRANDEDNESS: single
331              (D) TOPOLOGY: linear
333        (ii) MOLECULE TYPE: peptide
337        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:
339         Asp Glu Ala Asp Ser Thr Leu Arg Gln His Asp Val Glu Val Asp
340         1               5                   10                  15
342  (2) INFORMATION FOR SEQ ID NO: 18:
344        (i) SEQUENCE CHARACTERISTICS:
345              (A) LENGTH: 14 amino acids
346              (B) TYPE: amino acid
347              (C) STRANDEDNESS: single
348              (D) TOPOLOGY: linear
350        (ii) MOLECULE TYPE: peptide
354        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:
356         Gln Tyr Asp Ser Tyr Asp Val Lys Ser Gly Val Ala Val Gly
357         1               5                   10
359  (2) INFORMATION FOR SEQ ID NO: 19:
361        (i) SEQUENCE CHARACTERISTICS:
362              (A) LENGTH: 15 amino acids
363              (B) TYPE: amino acid
364              (C) STRANDEDNESS: single
365              (D) TOPOLOGY: linear
367        (ii) MOLECULE TYPE: peptide
371        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:
373         Gly Ile Cys Glu Ser Cys Pro Thr Gly Pro Gln Asn Tyr Ser Pro
374         1               5                   10                  15
376  (2) INFORMATION FOR SEQ ID NO: 20:
378        (i) SEQUENCE CHARACTERISTICS:
379              (A) LENGTH: 15 amino acids
380              (B) TYPE: amino acid
381              (C) STRANDEDNESS: single
382              (D) TOPOLOGY: linear
384        (ii) MOLECULE TYPE: peptide
388        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:
390         Gly Ile Gly Gly Glu Lys Ala Gly Gly Phe Ala Pro Tyr Tyr Gly
391         1               5                   10                  15
393  (2) INFORMATION FOR SEQ ID NO: 21:
395        (i) SEQUENCE CHARACTERISTICS:
396              (A) LENGTH: 15 amino acids
```

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    Input Set : **N:\Crf3\RULE60\10720831.raw**
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Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:12; Xaa Pos.16

Invalid Line Length:
The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:1; Line(s) 63
Seq#:2; Line(s) 80
Seq#:3; Line(s) 97
Seq#:4; Line(s) 114
Seq#:5; Line(s) 131
Seq#:6; Line(s) 151
Seq#:7; Line(s) 168
Seq#:8; Line(s) 185
Seq#:9; Line(s) 202
Seq#:10; Line(s) 219
Seq#:11; Line(s) 236
Seq#:12; Line(s) 254
Seq#:13; Line(s) 271
Seq#:14; Line(s) 291
Seq#:15; Line(s) 308
Seq#:16; Line(s) 325
Seq#:17; Line(s) 342
Seq#:18; Line(s) 359
Seq#:19; Line(s) 376
Seq#:20; Line(s) 393
Seq#:21; Line(s) 410
Seq#:22; Line(s) 426
Seq#:23; Line(s) 442
Seq#:24; Line(s) 458
Seq#:25; Line(s) 476
Seq#:26; Line(s) 492
Seq#:27; Line(s) 508
Seq#:28; Line(s) 523
Seq#:29; Line(s) 539
Seq#:30; Line(s) 555
Seq#:31; Line(s) 571
Seq#:32; Line(s) 587

VERIFICATION SUMMARY   DATE: 08/27/2004
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L:29 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:30 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:250 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:0